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AUTHOR Weinberg, Sanford; And Others
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ABSTRACT

In order to determine the communication factors of group leadership, 500 undergraduates enrolled in an introductory communication theory course at a large New England university were randomly assigned to laboratory sections of 25 students each. Over an eight week period the students in each group redistributed into different groups varying in size and composition. Twenty-five students were chosen who consistently emerged as group leaders. These 25 students were randomly assigned to one of five groups of five individuals each. After discussion periods, subjects were asked to complete the three sets of forms which comprise the newly developed Leadership Quotient Index (LQI). Three significant factors of group leadership emerged; persuasion, openness, and information. The LQI was found to be both valid and reliable. Though further refinements of LQI are contemplated, the index as it now stands can serve as a highly useful operational definition of group leadership. (Sample questionnaires are included.) (JF)

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COMMUNICATION FACTORS OF GROUP LEADERSHIP

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Sanford B. Weinberg, Ph.D.
Larry J. Smotroff
John C. Pecka
University of Connecticut

CS 502 112

COMMUNICATION FACTORS OF GROUP LEADERSHIP: TOWARD AN OPERATIONAL DEFINITION

RATIONALE

Group leadership has been defined and studied in a variety of diverse manners: in terms of leader development, including emergence (Geier, 1967), stability (Crosbie, 1975) and developmental traits (Bird, 1940); as a function of group behaviors, such as style (Lippitt and White, 1940), phase evolution (Fisher, 1974), and power relationships (Shaw, 1971); as a dependent of situation (Fiedler, 1964) and climate (Merei, 1958); and as an intersection of other orientations (Burgoon, Heston, and McCroskey, 1974). The result has been a prepondurance of interesting findings, practical suggestions, and valuable insights, but a severe lack of the inter-experimenter agreement of variable definitions necessary for any meaningful generalization or theory construction. The field is swamped with data but suffering a drought of common operationalizations that are necessary to assure that the conceptualization of "leadership" of researcher one corresponds with the phenomenon termed "leadership" by researcher two.

Of course, some diversity is useful, carrying with it the advantages of a multi-disciplinary system approach and weeding out individual experimenter biases through the counteraction of opposite points of view. At some point, however, progress requires the establishment of some central point of agreement. Researchers in leadership need to be able to agree upon a useful and non-tautological meaning of the term if individual results are to be compared and if unique findings are to be replicated.

This paper proposes a multidimensional factoral definition for the operationalization of "leadership" based upon behavioral observation.

Through a series of methodological steps every effort has been made to develop a non-circular answer to the research question, "What are the communication factors of group leadership?"

METHODOLOGY

A factor analysis of group leaders would, of course, provide a list of characteristics correlating significantly with group leadership. Before such an analysis could be conducted, however, it was necessary to find a sample of individuals who could reliably be classified as leaders. Without this preliminary stage, the entire process would be tautological: to confirm that subjects called leaders by the experimenters are characterized by qualities labeled as leadership by the experimenters is to prove nothing.

I. SAMPLE SELECTION

To develop a sample of Ss who could reliably be classified as leaders developed a two-phase methodology. To screen out intervening influences f power, status, or prior interaction, we restricted our study to a population consisting of five hundred undergraduates enrolled in an introductory communication theory course at a large New England university.

Within the context of the course all Ss were assigned randomly to laboratory sections of twenty-five students each. Each section was supervised by a teaching assistant, trained in behavioral observation but ignorant of the purpose of the experiment. Over an eight week period, each lab section completed a number of small group problems. Throughout this period, the twenty-five students were shuffled into different groups, varying in size (four to eight) and composition, so that each individual interacted with each other individual in the section on a number of occasions. The group problems were also varied, ranging from highly structured

("select which of the following persons should be admitted to the bomb shelter") to highly unstructured ("get to know each other" ; write a letter to a friend describing your groups impressions of the university.") On some occasions, groups were asked to reach specific goals within finite time limitations; with other problems, goals and duration were left to the group's discretion. At no time did the section supervisors appoint or legitimatize leadership in the groups; nor were the students briefed in class, readings, or the labs about leadership theory or practice.

Throughout the eight week period lab supervisors observed the group interactions. The teaching assistants were asked to use their observations, notes, impressions, and lab reports submitted by students to identify the individual or individuals who consistently emerged as group leaders. Each teaching assistant was joined in lab once during the phase one period by an experimenter, who made independent observational judgments (reliability correlation >0.80).

To avoid the definitional tautology teaching assistants were not provided with a definition of leadership. Three general criteria were suggested, however, after the observational period: a) target of most group discussion; b) recognized by the group as the leader; and c) major influence on group decision. These criteria parallel the three categories of leadership definition suggested by Carter (1953): focus of attention, influence toward group goal, and member preference.[1]

At the conclusion of phase one of sample selection, we had identified twenty-five subjects subjectively determined to be individuals who consistently emerged as group leaders. Stage two was used to determine the reli-

[1]Carter's fourth category, that of affect on group syntality, is most reasonably viewed as a combination of the other three divisions.

ability of the subjective ratings.

Time and course instructional constraints did not permit a simple replication of the methodology described above. Rather, it was necessary to develop a different technique for more accurately determining whether or not the selected sample was actually representative of leaders in the population.

Since the population consisted mainly of individuals who did not know each other, it was not possible to merely ask the population members to rate as leaders the sample members. Instead, we attempted to find a subsample which the sample members would clearly identify as leaders. Hopefully, the members of this subsample would be individuals observed as consistently emerging leaders by teaching assistants and recognized as leaders by other emergent individuals.

The twenty-five members of the sample were randomly assigned to membership in one of five groups of five individuals each. Each group met in an informal lounge area, around a one-way mirror. Ss knew they were being observed, and were told the observation was related to the training of coders for a future nonverbal communication experiment (subsequent interviews indicated a very low level of obtrusion). Sample members believed they had been included in the sample on the basis of a random lot, and did not know of the leader-emergence selection process.

Each group was asked to discuss an open-ended question ("We are in the process of totally revising this course. What suggestions for improvement would you recommend?"). During the fifteen minute discussion period, the groups were observed through the mirror by three raters trained in the use of the Bales' Interaction Process Analysis tool (1950). The interaction itself was also tape recorded.

After the discussion period, each rater determined through the IPA: 1) the most frequent speaker; and b) the individual who most often moved the group in a positive direction. Raters were also asked to estimate the leaders of the group on the basis of observed nonverbal behavior (most particularly eye contact and proxmic arrangement). In addition to these factors, which the raters anticipated, the panel was asked individually to subjectively determine the group leader or leaders (intercoder reliability> 0.80).

Subjects were led into another room and asked to complete three sets of forms. Set one was a paired-item test, asking the subject to compare each group member with each other group member on the dimension of "leadership" (undefined). The same tool also asked that each subject rank all group members (self included) to indicate who would be a preferred leader in a group situation.

Set two was an adaptation of the functional leadership roles defined by Yalom, (1973). Each subject was asked to name the individual who would potentially make the best manager, information source, recorder, etc. Subjects were asked to include themselves in the evaluation where appropriate.

The third questionnaire asked for a critical incident definition of an individual, real or fictional, living or dead, well known or personal acquaintance considered by the subject to be the epitome of a good leader. The subject was asked to write a few sentences describing a specific incident in which the identified individual displayed fine leadership qualities.

Later, a sample of non-leaders from the same population, matched for

age, sex, and socio-economic background, was asked to complete the same critical incident questionnaire. Naive coders (three) rated both sets of responses (inter-coder reliability >0.8). There were no significant differences (.05 level) between the number of times specific characteristics (described below) were cited in the two groups.

Finally, as a validity and reliability control measure, the subjects in the emergent leader groups took the Gordon Survey of Interpersonal Values. The leadership dimension of that examination further confirmed (correlation >.8) that the sample and subsample consisted of individuals clearly defineable as leaders.

II. Sub-Sample Analysis

The critical incident definitions provided by sample members and by paired-nonsample population controls provided basic guidelines of investigation. Based upon these two lists, the data for a factor analysis was collected.

All members of the subsample completed a detailed battery of scales, including a demographic profile, family history profile, Thorndike Dimensions of Temperment Scale, Gordon Personal Inventory, and Gordon Personal Profile. In addition, each subject was interviewed in some lengthy detail concerning previous leadership experience, leadership training, and early experiences with significant others. Finally, the group of ten subsample members met for a discussion of leadership characteristics. This discussion session was recorded and subsequently analyzed for a further list of potential factors.

The categorized data and indicated factors were rotated through a series of factor analyses (OSIRIS FACTAN) using both oblique and orthoginal rotations. The first of the resulting factors identified has been

tentatively labeled as artifactual: subjects showed high values for the "self-confidence" factor. While self-confidence may indeed be important as a leadership characteristic, the intervening knowledge of the subjects that they had emerged as leaders in the experimental selection process (as revealed in subsequent interviews) invalidates the reliability of this finding.

Three other characteristics together produced a highly satisfactory solution (internal reliability of .87). These factors seem intuitively more promising. Each resulted in a correlational significance of greater than .8 . They are:

A. Openness: a combination of receiving ability and a willingness to respond to other group members and their suggestions;

B. Information: an apparent knowledge base and the ability to organize that information to make it accessible for group problem solving;

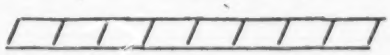
C. Persuasion: the ability to influence others in the group, and to maintain a highly credible group role.

These three characteristics also emerged in a subsequent analysis of the original sample (.89), while the self-confidence variable did not show significant (.05) influence. Incidentally, subjective analysis showed one probably artifactual but still interesting characteristic unique to the subsample: all (ten) subsample members had suffered a major childhood trauma, such as lengthy childhood hospitalization; loss (one through natural causes; one through murder) of a parent; sibling/parental rivalry resulting in runaways; early parental divorce; and major automobile accident with resultant family injuries. While this finding may be purely incidental, it is reported here for possibility of future speculation.

III. Tool Development

Based upon the three key factors identified above, a multi-dimensional measurement scale for the operational definition of leadership was designed and tested. The scale, labeled a "Leadership Quotient Index (LQI)", is a self-report measure of general group membership behavior. The subject is asked to complete a series of fifteen Likert-type eight point scales. Five randomly dispersed scales relate to the factor of openness; five to information; and five to persuasion. For example, a typical question reads:

(Are you a person who...) Changes the minds of fellow group members?



always never

The questionnaire is scored by producing an average for each of the three dimensions. The resulting three numbers describe a three dimensional space on which a point 1-1-1 would presumably be an ideal group leader. Of course, the tool is entirely self-report, and hence subject to wide inconsistency. To determine its relative value, therefore, a separate validity test was designed.

As described above (I), a second sample of five hundred undergraduate students were observed over an eight week period in a number of group interaction situations. Once again observers carefully noted emergent behavior. For the purpose of the tool validation test, however, observers rated all subjects on a one to five semantic differential scale of emergent leadership. That is, subjects who consistently emerged as leaders were rated "5"; students who never seemed to exert leadership or emerge as leaders were awarded a "1"; students falling between those extremes were rated appropriately. The intercoder reliability checks detailed above were repeated with the same results (correlation at .>8 level.)

During the observational period, the LQI test was administered to all subjects. Administration took place in a central lecture hall to minimize environmental influences; the test did not refer to leadership directly or indirectly; and students were not briefed concerning purpose or interpretation until the conclusion of the experiment.

Finally, the results of the LQI (both as three individual factors and as a total score) were correlated with the observational scores assigned. The results of the LQI validation are reported below.

Findings and Discussion

The LQI, designed on the basis of the series of studies described above, is a rudimentary but effective tool for the measurement of leadership. The Pearson Correlation described below indicates a significant positive correlation between the three leadership factors considered collectively ("total"_ and the behavioral observations ("obs"). Individually, the factors of openness ("open") and persuasion ("persuas") show significant correlations with observations; information ("info") proved here to be a less promising factor. Correlations between variables are also reported.

Insert Figure One

Based upon these findings, it seems that the LQI can serve as an accurate and useful operational definition of small group leadership. It has a high and reliable field validation with across-time, across-task and across-membership observational measures of leadership emergence.

Figure One

Coefficients
Significance Levels

	Open	Persuas.	Info.	Total	OBS
Open		-.0157 .412	.0720 .153	.3719 .001	.1507 .012
Persuas			.7077 .001	.5124 .001	.1001 .077
Info				.5206 .001	.0828 .119
Total					.1702 .007

Variable	Mean	S.D.
Open	6.4483	0.6156
Persuas	5.1844	1.0999
Info	5.1878	0.8488
Total	85.1219	10.0036
OBS	2.4585	1.5386

The test itself is simple to administer and to interpret. The three factors of persuasiveness, openness, and information are empirically derived from a sample of demonstrable leaders.

Of course, the LQI has a number of significant limitations, and hence would benefit from a revision (already under way). For example, the information dimension does not significantly contribute to the power of the tool, probably because of restriction of that dimension to items tapping the availability of information, instead of the organization and application of information. No doubt this flaw accounts for the low significance level on the dimension, and weakens (though does not invalidate) the tool. Other contemplated revisions include expansion of the scale to increase sensitivity (Ss tend to avoid the "never" extremes in self description), and modification of the administration procedure to minimize ego intrusion in the self-report measurement technique.

Finally, the three factors of the LQI might be more accurately interpreted as multidimensional vectors rather than point descriptors. Octant graphing would allow interpretation of all leadership functions and blocks in a group, rather than relying upon a three-dimensional measure of distance from an "ideal" point.

Despite these obvious limitations and potential revisions, the LQI is a highly utilitarian tool and does provide a firm basis for the eventual development of a universally applicable operational definition of group leadership. Such a tool, allowing cross-experimenter comparisons of results and simplifying replication of experimental findings, can make a major contribution to all aspects of group communication research.

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LOG

The purpose of this first questionnaire is to determine how you honestly view your participation and role as a group member.

on the next four pages you will find a series of thirty questions. Each question is followed by an eight point scale. For example, a question might ask:

Usually, as a member of this group...

You are a person who arrives on time

/ 1/2 /3 / 4/ 5/ 6/ 7/ 8/

sometimes always

Simply choose the box that represents your general group participation. Try to generalize rather than think of the most recent cases of group interaction. Mark your response in the appropriate spot on your answer sheet. Take as much time as you need to complete the questionnaire. When you have finished all thirty questions, go on to the next section. Once you go on to another section, do not come back to this questionnaire. Complete it fully before going on to STEP B.

There are no right or wrong answers: all results will be kept confidential. Answer each question independently as honestly as possible.

1. You are a person who asks others for their opinions.

/1/2/3/4/5/6/7/8/

sometimes always

2. You are a person who changes the minds of fellow group members.

/1/2/3/4/5/6/7/8/

sometimes always

3. You are a person who helps others make decisions.

/1/2/3/4/5/6/7/8/

sometimes always

4. You are a person who often ha a big part in making group decisions.

/1/2/3/4/5/6/7/8/

sometimes always

5. You are a person who helps direct group operations.

/1/2/3/4/5/6/7/8/

sometimes always

6. You are a person who helps develop a plan for group activities.

/1/2/3/4/5/6/7/8/

sometimes always

7. You are a person who acts as a manager.

/1/2/3/4/5/6/7/8/

sometimes always

8. You are a person who tries to understand others feelings.

/1/2/3/4/5/6/7/8/

sometimes always

9. You are a person who is sensitive to others feelings.

/1/2/3/4/5/6/7/8/

sometimes always

10. You are a person who can be highly trusted.

/1/2/3/4/5/6/7/8/

sometimes always

11. You are a person who is willing to listen to new ideas.

/1/2/3/4/5/6/7/8/

sometimes always

12. You are a person who often changes the opinions of others.

/1/2/3/4/5/6/7/8/

sometimes always

USUALLY, AS A MEMBER OF THIS GROUP,

13. You are a person who knows what other group members think.

/1/2/3/4/5/6/7/8/

sometimes always

14. You are a person who can organize the group.

/1/2/3/4/5/6/7/8/

sometimes always

15. You are a person who seems to know about many things related to group activities.

/1/2/3/4/5/6/7/8/

sometimes always

16. You are a person who seeks out opinions in others.

/1/2/3/4/5/6/7/8/

sometimes always

17. You are a person who responds to other group members ideas.

/1/2/3/4/5/6/7/8/

sometimes always

18. You are a person who pays attention to others in a group.

/1/2/3/4/5/6/7/8/

sometimes always

19. You are a person who is extremely hard-working.

/1/2/3/4/5/6/7/8/

sometimes always

20. You are a person whose opinions mean a lot.

/1/2/3/4/5/6/7/8/

sometimes always

21. You are a person who can be trusted with secrets.

/1/2/3/4/5/6/7/8/

sometimes always

22. You are a person who wants to know what others think.

/1/2/3/4/5/6/7/8/

sometimes always

23. You are a person who has the answers to questions.

/1/2/3/4/5/6/7/8/

sometimes always

USUALLY, AS A MEMBER OF THIS GROUP,

24. You are a person who provides the group with a lot of important information.

/1/2/3/4/5/6/7/8/
sometimes always

25. You are a person who is honest.

/1/2/3/4/5/6/7/8/
sometimes always

26. You are a person who people can come to for information.

/1/2/3/4/5/6/7/8/
sometimes always

27. You are a person who cares about what others think of group activities.

/1/2/3/4/5/6/7/8/
sometimes always

28. You are a person who gives the group valuable information.

/1/2/3/4/5/6/7/8/
sometimes always

29. You are a person who is well organized in group matters.

/1/2/3/4/5/6/7/8/
sometimes always

30. You are a person who can be trusted.

/1/2/3/4/5/6/7/8/
sometimes always

1. TO SCORE THE LOG: total the responses given for each individual (ranging from one to eight for thirty questions, hence resulting in an individual score of from 30 to 240 points.)

NOTE: score blank responses as "1" for each question.

CODE THE LOG AS:

point total	code
30-72.....	1
73-115.....	2
116-157.....	3
158-200.....	4
201-240.....	5

LOG FOR PERSON A _____

LOG FOR PERSON B _____

LOG FOR PERSON C _____

LOG FOR PERSON D _____

LOG FOR PERSON E _____

LOG FOR PERSON F _____

LOG FOR PERSON G _____

LOG FOR PERSON H _____

LOG FOR PERSON I _____

LOG FOR PERSON J _____

2. TO SCORE SALIENCY: the scoring of this variable is a bit complex. Calculate each individual's total in these two steps:

a. First, REVERSE THE SCORES for questions 1, 2, and 3. That is, record a 1 as 5, a 2 as 4, a 4 as 2, and a 5 as 1.

b. Now total the responses for all six questions. Your total should range from 6 to 30 for each person.

CODE ANY MISSING CASES AS "3" when totalling the scores.

CODE SAL AS:

TOTAL	SAL
6-14	1
15-22	2
23-30	3

SAL FOR PERSON A _____

SAL FOR PERSON B _____

SAL FOR PERSON C _____

SAL FOR PERSON D _____

SAL FOR PERSON E _____

SAL FOR PERSON F _____

SAL FOR PERSON G _____

SAL FOR PERSON H _____

SAL FOR PERSON I _____

SAL FOR PERSON J _____